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The *GALEX* UV emission in shell galaxies

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Abstract. Shell galaxies are widely considered the debris of recent accretion/merging episodes. Their high frequency in low density environment suggests that such episodes could be among the driver of the early-type galaxy secular evolution. We present far and near UV (FUV and NUV respectively hereafter) *GALEX* photometric properties of a sample of shell galaxies.

1. Introduction

In a hierarchical evolutionary scenario, galaxies experience accretion/merging events during their lifetime. While early-type galaxies in nearby clusters appear (homogeneously) old, the field early-type galaxy population seems to contain genuinely, recently *rejuvenated* objects (see e.g. Clemens et al. 2006). Early-type galaxies showing fine structure, like shells, occupy a special position since they are believed to fill the gap between ongoing mergers and normal elliptical galaxies. The UV emission is crucial to test whether these galaxies do host ongoing/recent star formation processes and study their distribution across the galaxy. We present new *GALEX* observations of three shell galaxies NGC 1210, MCG -05-07-1 (GI04-0030-0059 PI D. Bettoni) and NGC 5329 (from archive) in addition to those analyzed in Rampazzo et al. (2007) which we use as baseline for our preliminary conclusions.

2. UV data and discussion

Table 1 summarizes the journal and the basic results of the *GALEX* observations.

Table 1. Journal of the *GALEX* observations

| Name | NUV exposure [sec] | FUV exposure [sec] | P.I. | m_{NUV}^{tot} | m_{FUV}^{tot} | FUV-NUV |
|-------------|-----------------------|-----------------------|------------|-----------------|-----------------|-----------|
| MCG-05-07-1 | 1510 | 1531 | D. Bettoni | 18.67±0.07 | 19.76±0.07 | 1.11±0.10 |
| NGC 1210 | 1558 | 1608 | D. Bettoni | 17.14±0.02 | 20.08±0.07 | 2.95±0.07 |
| NGC5329 | 3889 | 2666 | MIS | 18.20±0.02 | 20.20±0.04 | 2.02±0.05 |

FUV - NUV AB magnitudes have been corrected for Galactic extinction.

Smoothed images and 2D colour maps are shown in Figure 1. FUV emission in NGC 5329 is present only in the central part of the galaxy. In NGC 1210

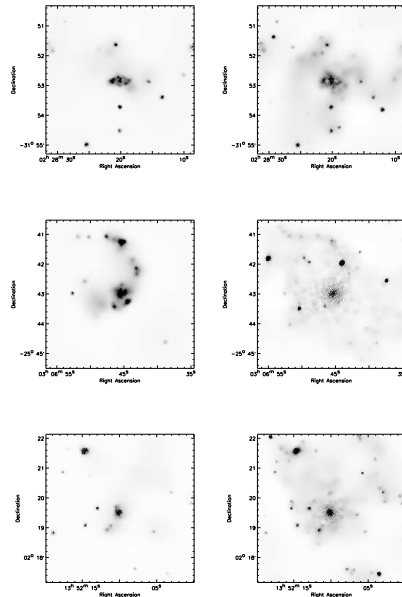


Figure 1. *GALEX* FUV (left panels), NUV (middle panels) images ($5' \times 5'$) and (FUV-NUV) colour maps (right panels) of MCG-05-07-1 (top row), NGC 1210 (mid row) and NGC 5329 (bottom row). FUV and NUV images are smoothed using *Asmooth* (Ebeling et al. 2006).

and MCG-05-07-01 the FUV is quite strong both in the polar ring of the former galaxy and in the debris systems, residual of the accretion events of both galaxies. The (FUV-NUV) colour in the north tail of NGC 1210 (~ 0.31 , ~ 0.34 , ~ 0.96), in the polar ring (~ 0.36 , ~ 0.73) and in the nucleus (~ 1.11) of MCG-05-07-01 are quite blue. Neff et al. (2005) show that tail/bridges produced by interaction may have similar colour indicative of a recent star formation (200-300 Myr). The age of 1-3 Gyr estimated by Whitmore et al. (1987), responsible for the present structure of MCG-05-07-01, is consistent with age indication coming from (UV - optical) colours.

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